

Referring now to FIG. 5, there is shown an alternative embodiment of the invention wherein items similar to those described above having similar reference numerals with the distinguishing suffix "a" added. In this embodiment, the outer cylindrical surface 45a, defined the finger extension lips 41a, and the inner cylindrical mounting surface 46a of the collar 40a are formed with cooperating detents for releasable snap action inter-engagement and alignment of the components during assembly. In this instance, the inner cylindrical surface 46a of the collar 40a is formed with an outwardly rounded or arcuate-shaped protrusion 50a and the outer surface 45a of the lips 41a is formed with a complementary shaped recess 60 for receiving the protrusion 50a.

The protrusion 50a preferably is located at a distance from the side of the collar which seats against the inner ring shoulder 38a corresponding substantially to the distance of the recess 60 from the shoulder 38a. The protrusion 50a of the collar 40a again has an inner diameter that is less than the diameter of the finger extension lips 41a with the curved configuration of the arcuate-shaped protrusion 50a serving to cam and force the finger extensions 36a and collar 40a apart during assembly to facilitate snap action engagement therebetween when the collar 40a is properly seated on the inner ring 14a against the shoulder 38a. Again, preliminary factory assembly of the locking collar 40a may be efficiently effected with the collar being properly located in mounted position for final tightening upon subsequent installation of the bearing assembly 10a on a shaft.

Referring now to FIGS. 6 and 7, still another embodiment of the invention is shown, wherein items similar to those described above have been given similar reference numerals with the distinguishing suffix "b" added. In this embodiment, the collar 40b has a generally V-shaped protrusion 50b disposed at the juncture of inner cylindrical surfaces 46b, 60 of the collar 40b. The protrusion 50d again has a smaller internal diameter than the lips 41b of the finger extensions 36b and is forced onto the finger extensions 36b and into the groove 39b with snap action engagement. The inner cylindrical surfaces 46b, 58b of the collar 40b on opposite sides of the protrusion 50b have different diameters so as to both be in close relationship with the cylindrical surface 45b of the finger extension lips 41b and the bottom surface of the groove 39b, respectively.

In contrast to the first and second embodiments of the invention, in this embodiment the protrusion 50b does not extend around the entire inner annular surface of the collar 40b, but rather, only at discreet points, as shown in FIG. 6. It will be appreciated, however, that the interference between the collar 40b and the finger extensions 36b at these discrete points, which are preferably symmetrically disposed, is sufficient to retain the components together.

Referring now to FIGS. 8-9, there is shown another embodiment of the invention wherein items similar to those described above have been given similar reference numerals with the distinguishing suffix "c" added. In this embodiment, the protrusion of the locking collar 40c is defined by a separate annular resilient member 55 carried within the annular opening of the locking collar 40c. The illustrated annular resilient member 55 is an O-ring disposed within a rectangular groove 56 formed in the inner cylindrical surface 46c of the locking collar and sized so that a portion of the O-ring extends radially inwardly beyond the annular surface 46c to form a resilient protrusion. The cylindrical inner surface 46c of the locking collar preferably is only slightly larger than the outer diameter of the finger extension lips 41c such that upon positioning of the locking collar 40c onto the finger extensions 36c the O-ring 55 is forced substantially into the groove 56 and contained therein until reaching the

recess or groove 39c of the finger extensions 36c at which time the O-ring 55 will snap into the recess for locating and retaining the locking collar 40c in preassembled position adjacent the inner ring shoulder 38c. The distance between side of the locking collar positionable against the inner ring shoulder 38c and the locking collar groove 56 corresponds substantially to the axial length of the finger extension groove 39c such that upon snap action engagement of the O-ring 55 into the groove 39c the locking collar 40c is located against the shoulder 38c. Following such preassembly of the locking collar 40c, the locking screw 42c can be tightened to deform the finger extensions 36c into secure engaging relationship with the shaft upon which it is mounted.

Referring now to FIGS. 10-11 still another alternative embodiment of bearing assembly is shown wherein items similar to those described above have been given similar reference numerals with the distinguishing suffix "d" added. In this embodiment, the inner cylindrical surface of the locking collar 40d and the outer surface of the finger extensions 36d are formed with cooperating threads 62, 63, respectively, which enable the locking collar 40d to be rotatably threaded onto the finger extensions 36d until reaching its preassembly position in abutting relation with the inner ring shoulder 38d. The threads 62, 63 in this case form protrusions which retain the locking collar 40d in preassembled position. Again, following such preassembly, tightening of the locking screw 42d will deform the finger extensions into secure engagement with the shaft upon which the bearing assembly is mounted.

In summary, it will be seen from the foregoing that the invention provides a unique bearing assembly locking arrangement wherein the locking collar may be preassembled onto the inner bearing ring in the factory. The locking collar is provided with a protrusion along its inner annular surface, and the finger extensions of the inner ring are provided with a mating groove. Both the groove and the protrusion may be of various sizes and shapes, extending completely or partially along the annular surface, so long as the groove and protrusion are relatively sized so that there is an interference between the components when in their free state. In this way, when the collar is preassembled onto the inner bearing ring, the collar is held in the proper position for subsequent installation and tightening onto a shaft.

What is claimed is:

1. A bearing assembly comprising an inner ring for mounting on a shaft, an outer ring disposed concentrically about said inner ring, a plurality of rolling elements interposed between said inner and outer rings, said inner ring including finger extensions extending axially from a side thereof, a collar comprising a lone piece annular compressible member positionable circumferentially about said finger extensions, said finger extensions having an outer periphery formed with threads, said one piece annular member having an inner annular mounting surface formed with threads that are engageable with said finger extension threads for permitting said annular member to be rotatably threaded on to said finger extensions to a preassembled position, and said annular member having a fastening screw operable for causing said annular member to compress said finger extensions into locking engagement with a shaft following preassembled positioning thereon.

2. The bearing assembly of claim 1 in which said inner ring is formed with a locating shoulder, and said annular member is rotatably threaded onto said finger extensions into abutting engagement with said locating shoulder.

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